

What is claimed is:

- 1 1. An experimental animal having corneal epithelial damage, wherein said corneal  
2 epithelial damage is caused by contacting an ocular cornea of said animal with a  
3 water-absorbing material and thereby generating a difference in osmotic pressure  
4 between an inside and an outside of the ocular corneal epithelium cells.
- 1 2. The experimental animal of claim 1, wherein said corneal epithelial damage is dry eye.
- 1 3. The experimental animal of claim 1, wherein the water-absorbing material is contacted  
2 either with a whole area of the ocular cornea or a part thereof, or with a pupil area  
3 of the ocular cornea.
- 1 4. The experimental animal of claim 3, wherein said corneal epithelial damage is dry eye.
- 1 5. The experimental animal of claim 3, wherein the experimental animal is a non-human  
2 mammalian or a fowl.
- 1 6. The experimental animal of claim 3, wherein the experimental animal is rabbit.
- 1 7. The experimental animal of claim 3, wherein said water-absorbing material includes at  
2 least one material selected from the group consisting of a polyol, a salt, an amino  
3 acid, a peptide and a water-soluble polymer.
- 1 8. The experimental animal of claim 3, wherein said water-absorbing material includes at  
2 least one material selected from the group consisting of a saccharide, an alkali  
3 metal salt and an alkali earth metal salt.
- 1 9. The experimental animal of claim 3, wherein said water-absorbing material includes at  
2 least one saccharides selected from the group consisting of glucose, maltose,  
3 sucrose, fructose, dextran and starch.
- 1 10. The experimental animal of claim 3, wherein said water-absorbing material is used in  
2 a physical state selected from the group consisting of powder, solution, gel, jelly  
3 and tablet.

1 11. The experimental animal of claim 3, wherein the ocular cornea is covered with a  
2 water-impermeable membrane or film having a hole or holes therein, the  
3 membrane or film being placed on the ocular cornea so that the hole or holes in the  
4 membrane or film comes on around the pupil area thereof, and said water-  
5 absorbing material is contacted with the ocular cornea through said hole or holes of  
6 the membrane or film.

1 12. The experimental animal of claim 11, wherein said corneal epithelial damage is dry  
2 eye.

1 13. The experimental animal of claim 11, wherein the experimental animal is a non-  
2 human mammalian or a fowl.

1 14. The experimental animal of claim 11, wherein the experimental animal is rabbit.

1 15. The experimental animal of claim 11, wherein said water-absorbing material includes  
2 at least one material selected from the group consisting of a polyol, a salt, an amino  
3 acid, a peptide and a water-soluble polymer.

1 16. The experimental animal of claim 11, wherein said water-absorbing material includes  
2 at least one material selected from the group consisting of a saccharide, an alkali  
3 metal salt and an alkali earth metal salt.

1 17. The experimental animal of claim 11, wherein said water-absorbing material includes  
2 at least one saccharide selected from the group consisting of glucose, maltose,  
3 sucrose, fructose, dextran and starch.

1 18. The experimental animal of claim 11, wherein said water-absorbing material is used  
2 in a physical state selected from the group consisting of powder, solution, gel, jelly  
3 and tablet.

1 19. The experimental animal of claim 3, wherein the water-absorbing material is  
2 contacted with the ocular cornea through a water-permeable or semi-permeable  
3 membrane or film.

1 20. The experimental animal of claim 19, wherein said corneal epithelial damage is dry  
2 eye.

1 21. The experimental animal of claim 19, wherein the experimental animal is a non-  
2 human mammalian or a fowl.

1 22. The experimental animal of claim 19, wherein the experimental animal is rabbit.

1 23. The experimental animal of claim 19, wherein said water-absorbing material includes  
2 at least one material selected from the group consisting of a polyol, a salt, an amino  
3 acid, a peptide and a water-soluble polymer.

1 24. The experimental animal of claim 19, wherein said water-absorbing material includes  
2 at least one material selected from the group consisting of a saccharide, an alkali  
3 metal salt and an alkali earth metal salt.

1 25. The experimental animal of claim 19, wherein said water-absorbing material includes  
2 at least one saccharide selected from the group consisting of glucose, maltose,  
3 sucrose, fructose, dextran and starch.

1 26. The experimental animal of claim 19, wherein said water-absorbing material is used  
2 in a physical state selected from the group consisting of powder, solution, gel, jelly  
3 and tablet.

1 27. A method of screening or evaluating a medicine for treatment or improvement of a  
2 corneal epithelial damage, comprising the steps of:  
3  
4 contacting an ocular cornea of an experimental animal with a water-  
5 absorbing material and thereby generating a difference in osmotic  
6 pressure between an inside and an outside of the ocular corneal  
7 epithelium cells to produce corneal epithelial damage ;  
8  
7 administering a medicine to the damaged ocular cornea ; and  
8  
evaluating the therapeutic effect thereof on the corneal epithelial damage.

1 28. The method of claim 27, wherein said corneal epithelial damage is dry eye.

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- 1 29. The experimental animal of claim 27, wherein the experimental animal is a non-  
2 human mammalian or a fowl.
- 1 30. The experimental animal of claim 27, wherein the experimental animal is rabbit.
- 1 31. The experimental animal of claim 27, wherein said water-absorbing material includes  
2 at least one material selected from the group consisting of a polyol, a salt, an amino  
3 acid, a peptide and a water-soluble polymer.
- 1 32. The experimental animal of claim 27, wherein said water-absorbing material includes  
2 at least one material selected from the group consisting of a saccharide, an alkali  
3 metal salt and an alkali earth metal salt.
- 1 33. The experimental animal of claim 27, wherein said water-absorbing material includes  
2 at least one saccharide selected from the group consisting of glucose, maltose,  
3 sucrose, fructose, dextran and starch.
- 1 34. The experimental animal of claim 27, wherein said water-absorbing material is used  
2 in a physical state selected from the group consisting of powder, solution, gel, jelly  
3 and tablet.
- 1 35. The method of claim 27, wherein the water-absorbing material is contacted either  
2 with a whole area of the ocular cornea or a part thereof, or with a pupil area of the  
3 ocular cornea. *a*
- 1 36. The method of claim 35, wherein the ocular cornea is covered with a water-  
2 impermeable membrane or film having a hole or holes therein, the membrane or  
3 film being placed on the ocular cornea so that the hole or holes in the membrane or  
4 film comes on around the pupil area thereof, and said water-absorbing material is  
5 contacted with the ocular cornea through said hole or holes of the membrane or  
6 film.
- 1 37. The method of claim 35, wherein the water-absorbing material is contacted with the  
2 ocular cornea through a water-permeable or semi-permeable membrane or film.
- 1 38. The method of claim 27, wherein said method further includes the steps of:

staining the damaged area of the ocular corneal epithelium, either

3 (a) after administration of the medicine, or

4 (b) before and after administration of the medicine; and

evaluating the therapeutic effect of said medicine, based on change in the  
stained area of the ocular corneal epithelium.

1 39. The method of claim 27, wherein the medicine is an eye drop.

1 40. The method of claim 38, wherein the medicine is an eye drop.

1 41. A medicine useful for treatment or improvement of a corneal epithelial damage,  
2 which is obtained, selected or evaluated by the method of claim 27.

1 42. A medicine useful for treatment or improvement of a corneal epithelial damage,  
2 which is obtained, selected or evaluated by the method of claim 38.

1 43. A method of making an experimental animal having corneal epithelial damage,  
2 comprising the step of contacting an ocular cornea of said animal with a water-  
3 absorbing material and thereby generating a difference in osmotic pressure  
4 between an inside and an outside of the ocular corneal epithelium cells.

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